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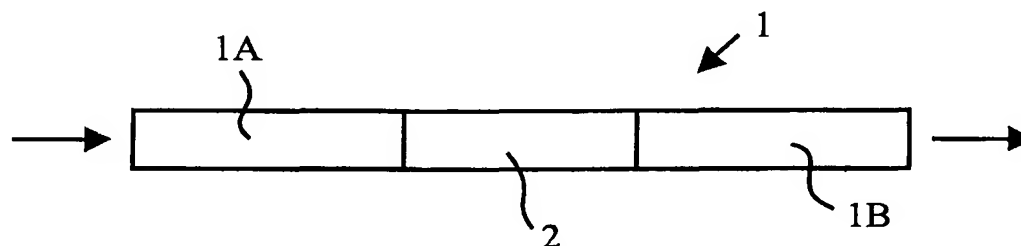
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(54) Title: **AN IN-LINE LIGHT SENSOR**



(57) Abstract: An integrated optical waveguide (1) having an in-line light sensor (2) integrally formed therewith for tapping off a small proportion of the signal transmitted along the waveguide (1). A first part (1A) of the waveguide leads to a photodiode portion (2) and a second part (1B) of the waveguide leads away from the photodiode portion (2), the photodiode portion (2) comprising one or more regions (14) of light absorbing material within the waveguide (1) arranged to absorb a minor proportion of light transmitted along the waveguide (1) and thereby to generate free charge carriers within the waveguide (1). Deep band gap levels (21) are introduced into photodiode portion by ion implantation to enable it to absorb selected wavelengths. The free charge carriers are detected by a p-i-n diode formed across the waveguide (1). Wavelength selective reflectors (11, 12) may be provided either side of the photodiode portion (2) so light passes repeatedly through the photodiode portion (2).